Kepler's SNR

Observation plan

We will perform a single pointing observation with an exposure time of 50 ks. The primary instrument is Resolve with an open filter.

We would like to make a slight shift of the aim point (~30" northward). We originally planned to aim at the very center of the remnant with an assumed roll angle of ~45 degrees measured north of east in case that we are awarded one pointing. Meanwhile, we realized that all Suzaku observations of Kepler's SNR were taken with roll angles of around zero degrees. This situation will be probably the same as XRISM (this needs to be checked). With this roll angle, outermost regions in both northern and southern rims will be out of the field of view of Resolve, making it difficult to achieve our minimal goals described in our proposal. Therefore, we would like to shift the originally-planned aim point toward the north by ~30" to make it easier to achieve minimal goals.

Immediate objectives

[1] Measure C/N/O abundances of the CSM to constrain the progenitor mass.
[2] Measure abundance ratios between unburned (C, O) and burned (Si, Fe) elements of SN ejecta to constrain the explosion physics.
[3] Measure odd-Z element abundances to constrain the progenitor metallicity.
[4] Measure line broadenings to study electron-ion temperature nonequilibration.